FAQ's (Frequently Asked Questions)

ON-SITE MINING

Q: What is the official ruling regarding robot designs that have the robot extend from the mining area back to the bin and deliver dirt to the bin without actually driving individual loads of dirt from the mining area to the bin?
A: See Rule 28. No ordnance, projectile, far-reaching mechanism (adhering to Rule 24), etc. may be used. The mining robot must move on the BP-1 surface.

Q: Does 10 kg of ice count as a qualifying run?
A: Yes.

Q: If we completely fill the top grate with ice, will it be cleared to allow us to continue to fill it?
A: Yes.

Q: How is the location of the obstacles in the obstacle zone determined?
A: See On-Site Mining Rule 16.

Q: Is it possible to get a sample of BP-1?
A: We are looking into this issue.

Q: How are the rules for dust free design applied to chains (regardless of protection, dust will reach designs using chains)?
A: See On-Site Mining Rule 3.h. The rules for Dust-Tolerant Design and Dust Free Operation apply equally to all drive trains.

Q: Does that mean that by using chain we will lose points on dust free design?
A: See On-Site Mining Rule 3.h. The Judges will award Mining points based on the Dust-Tolerant design features on the Mining Robot.

Q: How is first 10 kg of material scored?
A: See On-Site Mining Table 1. The first 10kg of regolith = 0 mining points. The first 10kg of icy-regolith = 150 mining points.

Q: In the scenario where a total of 10 kg of regolith & 10 kg of gravel are deposited, which is counted as the first 10 kg?
A: See On-Site Mining, Table 1. Both. The first 10kg of regolith = 0 mining points. The first 10kg of icy-regolith = 150 mining points.

Q: Additionally, if no regolith is scored and only gravel is scored is a minimum of 10kg of gravel necessary to get any points?
A: No. See On-Site Mining, Table 1.

Q: Can a navigational aid/beacon extend below the collector trough (such as off the front of the trough into the field)?
A: We are looking into this issue.

Q: Are points assessed continuously, or are they incremental? For example, if we collected 1.5 kg of gravel, would we earn 15 points, or 22.5?
A: I See On-Site Mining, Table 1. If you mine the 1.5 kg of icy-regolith (gravel), then the icy-regolith score would be 1.5 kg x 15 points = 22.5

Q: Clarification of what constitutes a violation of Rule 28, which refers to far reaching mechanisms. For example, would a tether running from the robot to the starting area be considered illegal?
A: Yes. This is outside of regulation. A Mars mining mission would not have this type of set-up.

Q: Can you comment on this rule: The walls may not be used for the purposes of mapping autonomous navigation and collision avoidance (there are no walls on Mars). We understand that walls are not on mars, but can we not detect them.
A: See On-Site Mining 3.n. The walls of the Caterpillar Mining Arena shall not be used for sensing by the robot to achieve autonomy. The team must explain to the inspection judges how their autonomous systems work and prove that the autonomy sensors do not use the walls. There are no walls on Mars and teams shall operate as closely as possible to a Mars scenario of operations. Integrity is expected of all team members and their faculty advisors. Failure to divulge the method of autonomy sensing shall result in disqualification from the competition.

Q: From the control room during a competition run, would it be within the rules for the controls personnel to manually update the autonomy program with information on the location of obstacles. For example, upon the start of the match and using the provided field cameras, the controls team would mark the rough location of each obstacle on the control application before starting the autonomy program. Would this still count as autonomy?
A: See On-Site Mining Rule 19. This would be action outside of regulations for autonomous operations and not count as autonomy. Autonomous robots have the ability to gain information about their environments, and work for an extended period of time without human intervention.

Q: What color are the walls and barriers around the arena? (For filtering purposes)
A: See Glossary – Caterpillar Mining Arena

Q: Would a fully closed (isolated) water cooling system be allowed on a robot?
A: See On-Site Mining Rules 24 and 25. Water is not a plausible, physical process that could be used on a robot on Mars and as such, is outside of regulations.

Q: Our IMU has a magnetometer on board but we are not calling on the data for our location algorithm. Are we still allowed to use this IMU?
A: Yes, you will have to explain it to the Inspection Judges, this is another one of those "honor system / integrity issues"

COMMUNICATIONS

Q: Can we bring our own power for the router for the arena?
A: No.

Q: Can we run signal cables (Ethernet) between the wireless router and beacons on the collector bin?
A: No.

RUBRICS

OTHER

Q: Is it possible to have two teams from the same university participate in RMC?
Q: If two teams from the same university are allowed, can these teams share team members and/or robot components? For example, can the team A robot from Alabama use the same sensor as the team B robot from Alabama (sharing hardware between the robots will save lots of money)? Similarly, can there be a team member on both Alabama teams (sharing team members would reduce team size and travel costs)? Sharing hardware and/or team members would only cause problems if both teams from the same university were scheduled to run at the same time/present at the same time, etc.
A: Please read Eligibility and Registration. Each team must "stand alone."

Q: Is it possible to find the technical papers from previous teams?
A: We cannot provide the technical papers.

Q: Will the Bot Shop at the contest have welding equipment available that can weld either aluminum or steel?
A: Not at the present time.

Q: We are in the process of designing a new robot. In the event the new robot does not work, do we have the option of bring last year's robot to the contest?
A: You must dig it with the same robot you designed, built and submitted all required documentation. Substituting a robot is outside of regulations

Q: Can anything be done about the lighting?
A: Last year was the 1st year in the Astronauts Memorial Foundation's Center for Space Education Building, AMF is addressing the issue. You are encouraged to bring portable LED lighting with you, however use common sense and good engineering practices and principles (all portable LED lighting shall be approved by the RoboPit Chief prior to use).

Q; Can we do more about spacing? Our pit didn't measure 10x10?
A: We will look into this issue.

Q: Can things be done to build more camaraderie among the teams? We felt a bit separated in the new system.
A: We are looking into consolidating all team into one RoboPit, in the meantime please send us your ideas!

Q: Will only 10 team members be allowed to the Awards Dinner this year? or will more members be allowed?
A: 10 members from each team are allowed to attend the ceremony.

End of FAQ's